EAGLE

EAGLE ENGINEERING (TELFORD) LTD.

About Eagle Engineering

Eagle Engineering is a design and manufacturing company specialising in the production and supply of Electro-plating barrels and units. Over a number of years we have proudly built a reputation for quality craftsmanship with our innovation and desire to be known as the people to supply plating barrels of impeccable quality.
All our barrels are manufactured from U.H.M.W PE 1000 polyethylene the ultimate material for plating barrel construction, giving 3 times the wear factor of PE 500 and 6 times that of polypropylene.

With today's requirement for quality assurance, coupled with the price sensitive market that is electro-plating, it is vital the plater, whether it be in-house or sub-contract, has the means to deliver a first class product finish, whilst avoiding the expensive reject problems often associated with barrel plating.
It is our aim to do just that, to give a product the customer can be soundly confident in, with an after purchase satisfaction of paramount importance.

Eagle UHMW PE 1000 grade plating barrels

The construction of Eagle plating barrels is of a unique design, this is due to the ongoing research and development ethic that has been necessary to supply a product to the following factors:

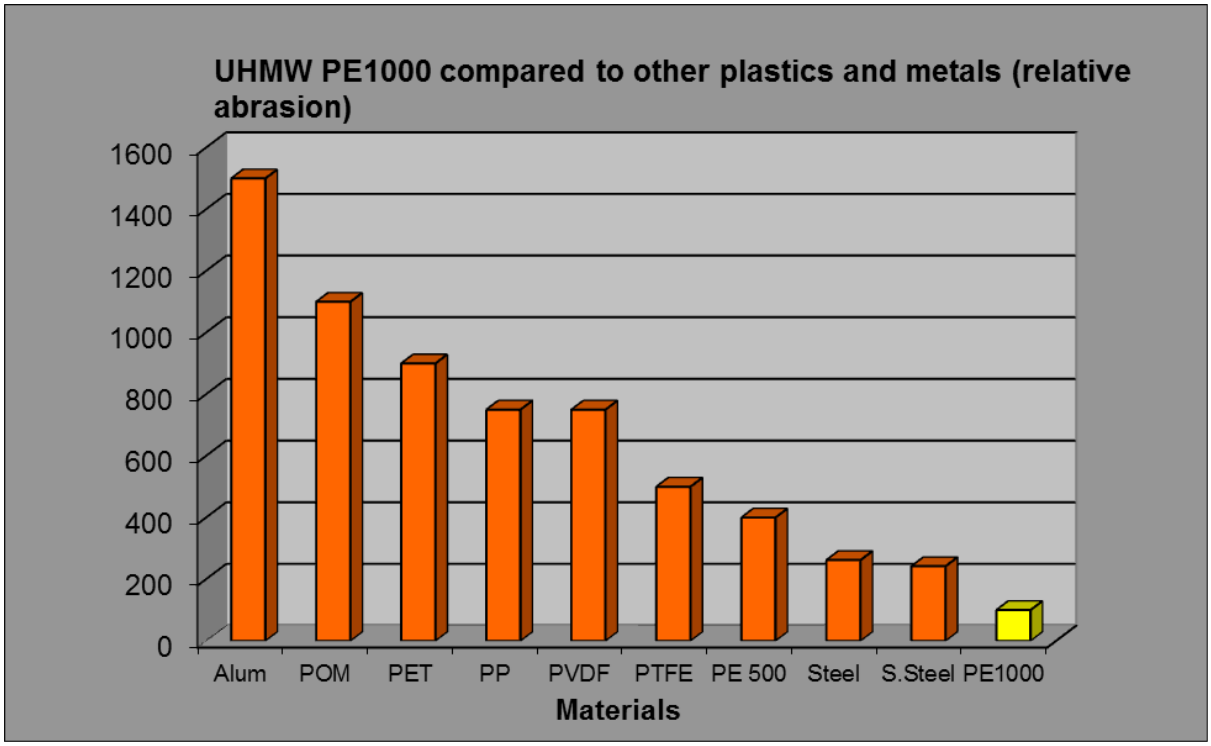
- **Prevention to component entrapment**
- **Almost unlimited wear resistance allowing years of uninterrupted life**
- **Highly efficient solution transfer**
- **Ultra high impact strength**
- **Excellent notch resistance**
- **Superb tensile strength**
- **Resistance to stress cracking**
- **Excellent resistance to hole closure**
- **Minimal surface tension**
- **High load capacity**

In our customers opinion the barrels we produce prove to be the most cost effective available. This is backed by a competitive purchase cost to the greatly extended life ratio over inferior materials and construction methods employed by alternative manufactures.

Eagle barrel cylinders and their advantages

- **Specialist barrel design for individual component requirement (coin blanks, nails and fasteners, pins, electrical contacts. etc)**
- **U.H.M.W PE 1000 Grade Polyethylene minimum 6 times the wear ability of Polypropylene.(Official technical charts and material data on request)**
- **18.5mm fully sealed high tensile steel rods**
- **One piece wrap-around cylinder skin (No multi-panel, avoiding construction joints and potential chemical traps)**
- **Heavy duty lid frame reinforced with high tensile steel bars**
- **U.H.M.W PE 1000 grade material allowing maximum perforated open area for increased solution and electrolytic transfer.**
- **Perforation chamfers and corrugation patterns available to eliminate surface tension and product adhesion.**
- **Extended warranty available**

The below volumetric chart demonstrates wear characteristics of various materials, as can be seen UHMW PE 1000 grade has an abrasive resilience far superior to that of steel and above 6 times that of Polypropylene (PP).



Maximum perforation is essential to the working efficiency of the barrel with up to a remarkable 40% open area.

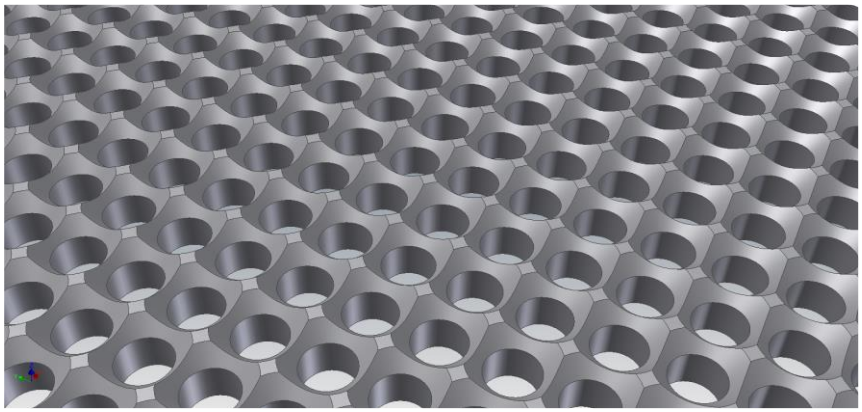
As standard barrel practise is to manufacture with a linear lid design, therefore the smallest of gaps will open-up and allow blank entrapment, the unique Eagle sinusoidal barrel cylinder has a series of radii running the length of the cylinder to aid the eradication of coin entrapment. The internal faces of the rail are precision CNC machined to this unique design, the lid is a perfect matching profile, avoiding coin entrapment. These rails have a 19mm diameter core drill hole running along its entire length housing a fully sealed 18.5 diameter high tensile steel rod for rigidity and strength.

We will match our barrels alongside any other manufacture in the world and have no doubt that they will outperform other suppliers by several years. This is because barrel cylinders produced from polypropylene cannot physically and factually compete with UHMW PE 1000. Our barrel cylinders are designed for longevity. We have barrels in perfect working order that have been in use for over 10 years on a 24/7 cycle these barrels have plated hundreds of tonnes of work, without question only UHMW PE 1000 grade can perform to this manner.

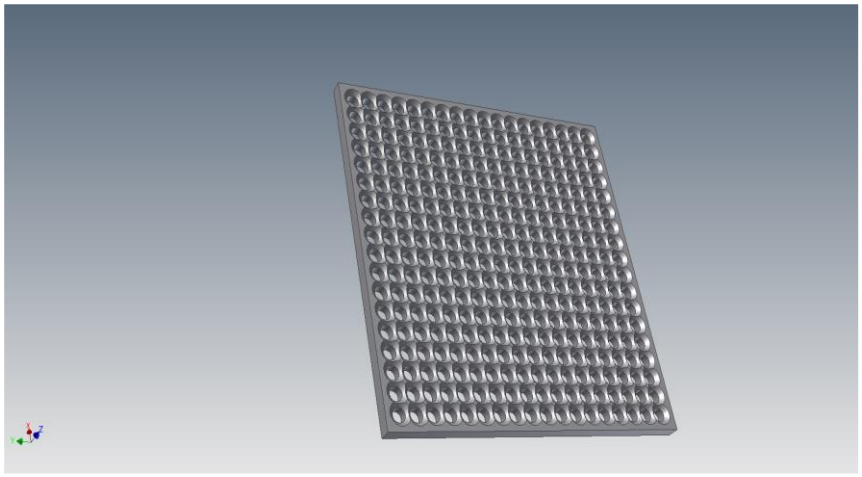
You are more than welcome to visit our company where you can view our workshop facilities and examine samples.

THE “EAGLE” COIN BARREL

The internal pattern of the barrel face is accurately machined to create a textured and uneven surface to avoid coin adhesion from the blanks to the barrel surface. (Surface tension)



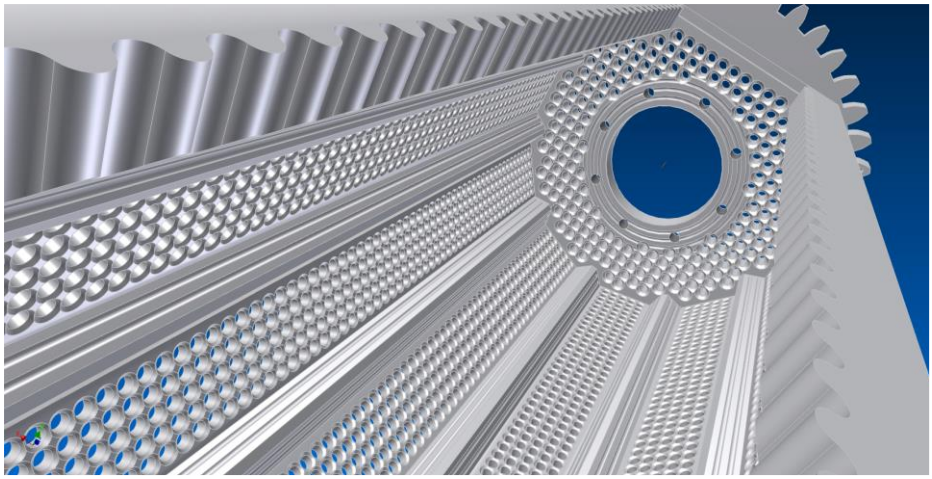
Ø12mm perforations on our standard matrix pattern gives a remarkable 40% open area over the drilled area.



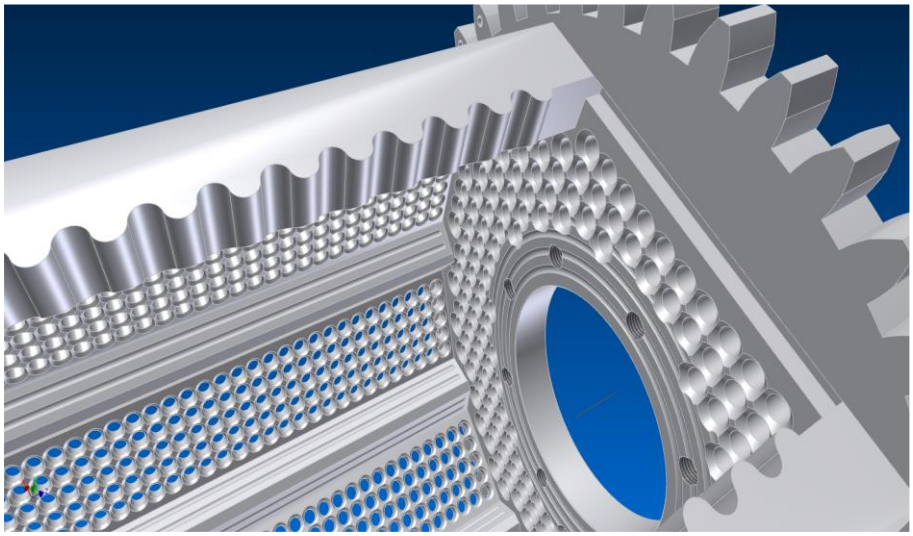
The outstanding abrasion (wear) resistance and high yield value of our premium grade UHMW PE 1000 material allows significantly more perforation holes, gaining superior open area. Thus, the efficiency of the barrel increases, achieving more Amperes at lower voltage. This, without weakening and compromising the barrel construction strength.

“EAGLE” coin plating barrels

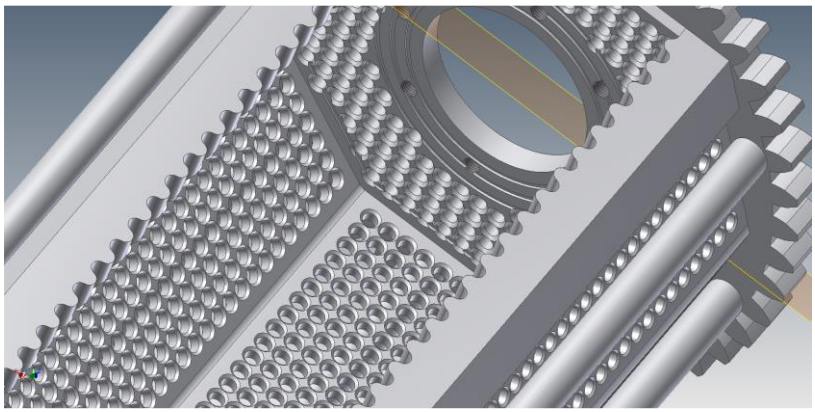
- Almost unlimited wear resistance. UHMW PE 1000 more than 6 times longer lasting than Polypropylene
- Highly efficient solution transfer.
- 40% perforated open area
- Integral high tensile steel rod supports
- Coin entrapment and sticking avoidance



End panels are perforated for extra open area and solution exchange.



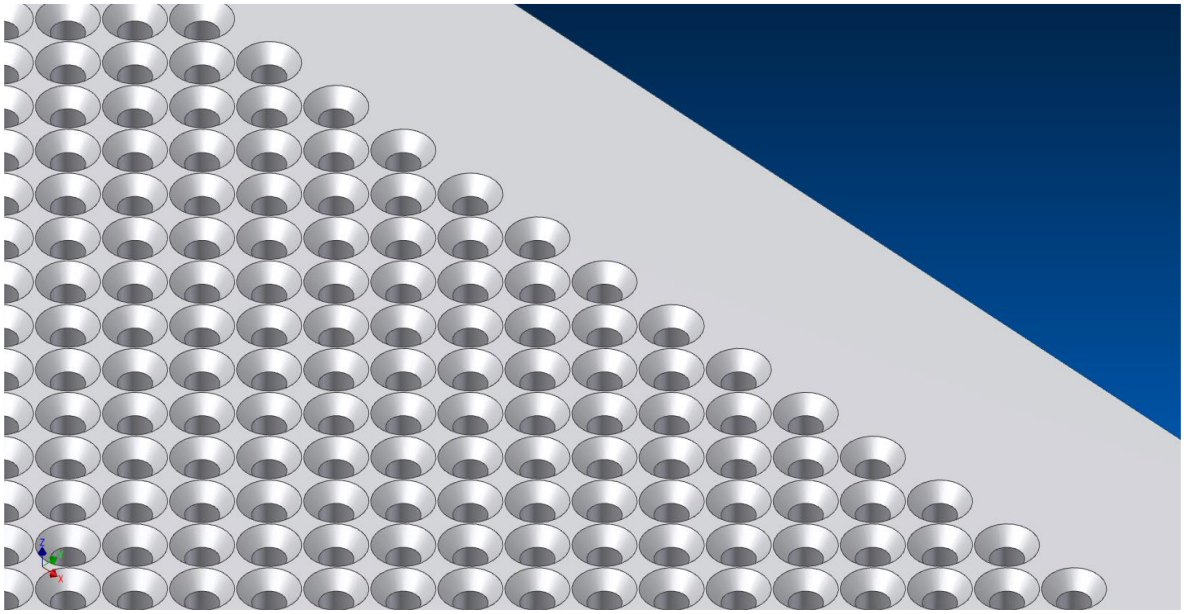
The sinusoidal wave barrel lid profile was developed by EAGLE to eliminate coin entrapment points



Eagle round bore hole perforation barrels

The round hole is internally countersunk to protect the hole from impact damage with the revolving parts. These countersinks greatly help the solution transfer to and from the barrel and reduction in solution drag out.

UHMW PE100O has a remarkable ability to resist in hole closure that occurs in Polypropylene and PE500 grade barrels.



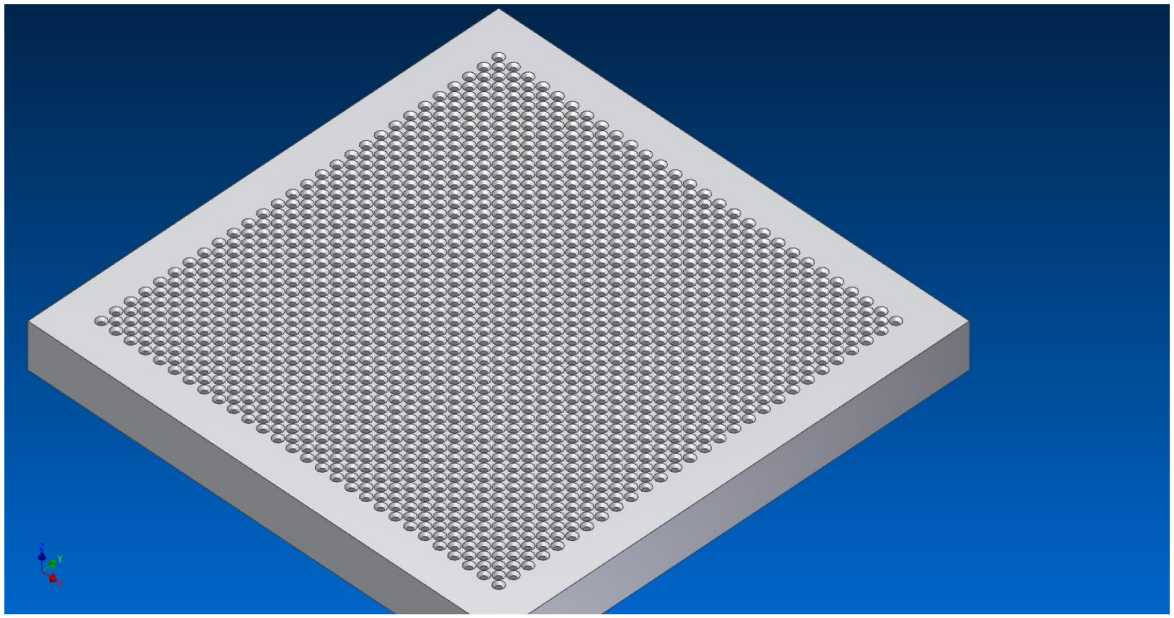
Plating Barrels - Advanced perforation techniques

Maximum perforation is essential to the working efficiency of the electro-plating barrel.

The greater the open area the more efficiently the electrolytic solution will transfer. This achieves greater amps at less volts resulting in faster deposit times.

We only use UHMW PE 1000 grade which, with its remarkable anti-wear and ultra high tensile strength characteristics, enables a greater number of perforations to be made than is possible with lower specification materials, couple with extended barrel life.

The perforation open area can be as high as 45% giving outstanding electroplating efficiency.

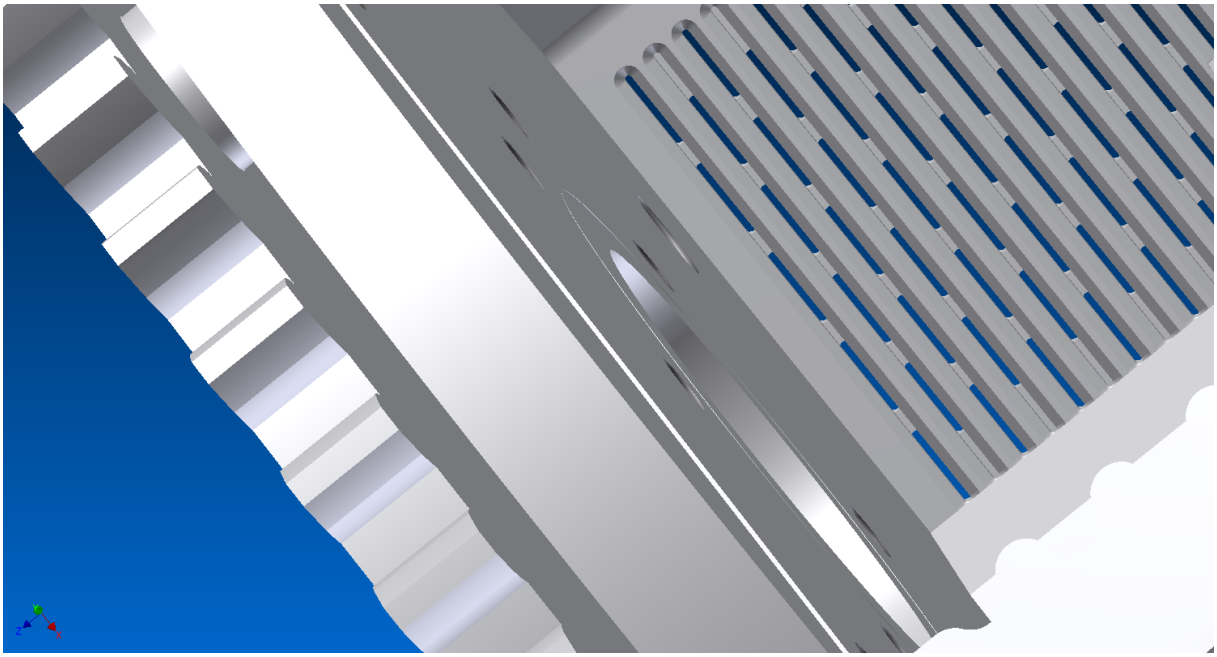


1.5mm countersunk perforations on a 4mm x 4mm pitch.

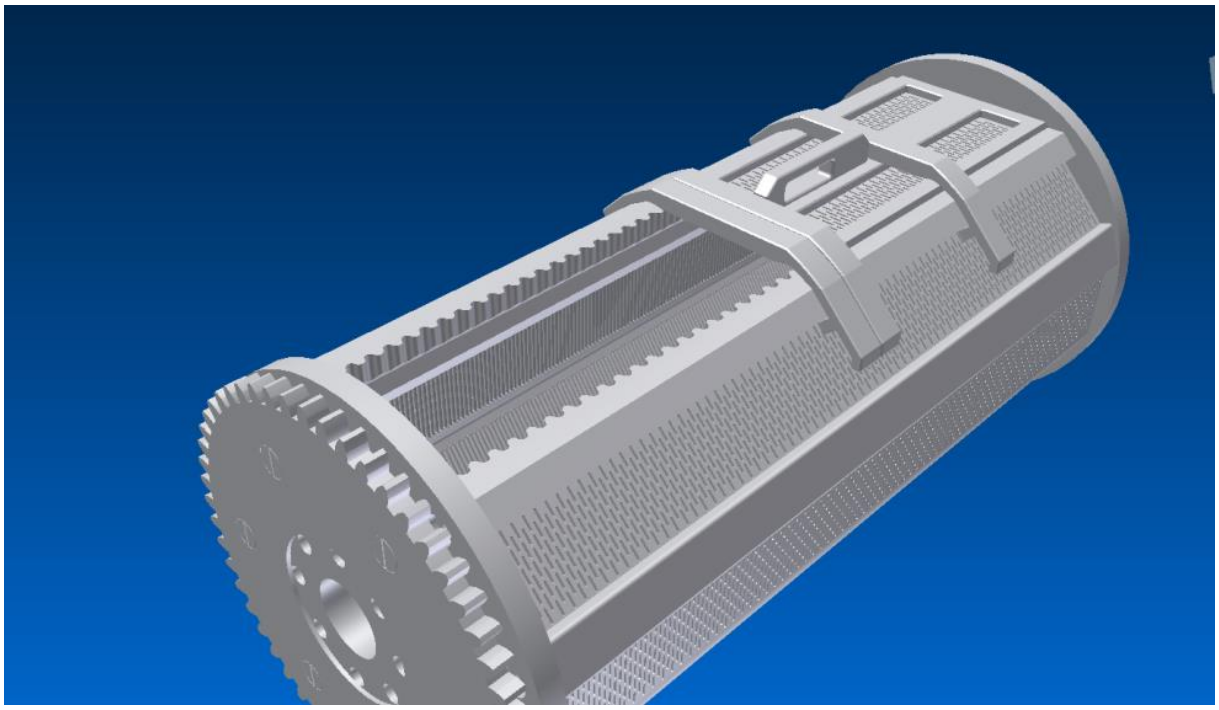
Eagle slot perforation barrels

The slot perforation is externally counter bored for faster solution transfer. As the barrel revolves, fresh solution is forced through the counter bore and pumped into the barrel

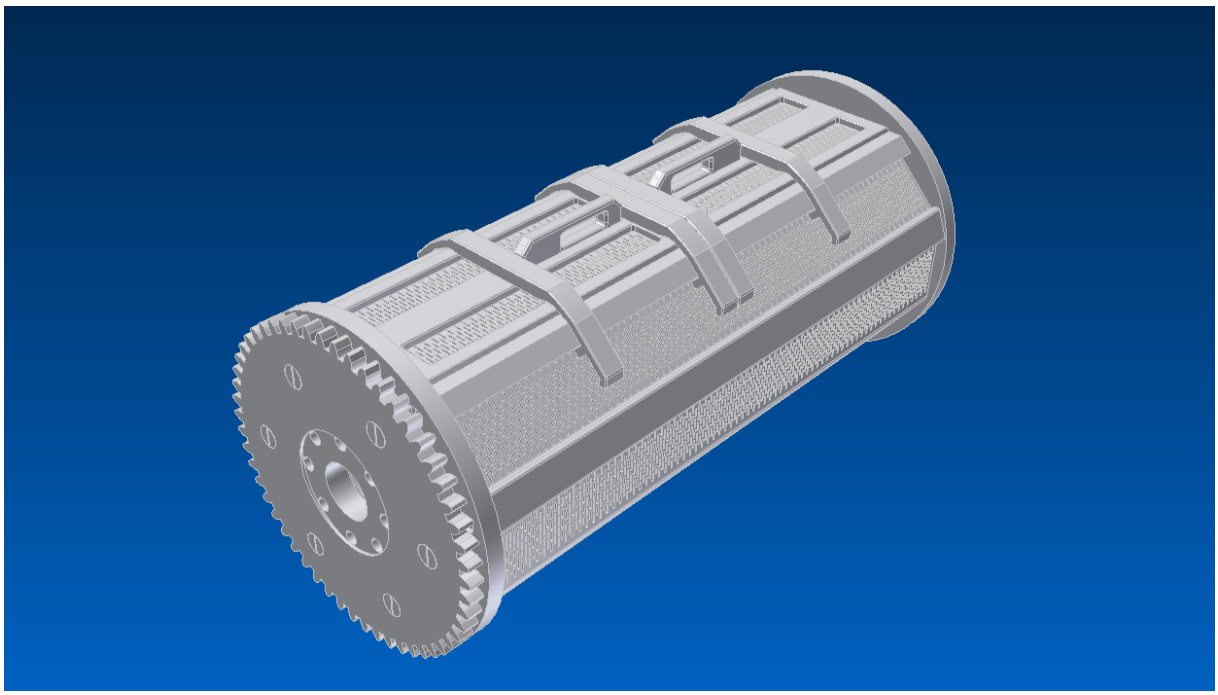
The internal slot perforation has a “V” profile, this protects the slot from impact damage and closure, decreases wear, fresh electrolyte is entering the barrel faster and solution drag-out is drastically reduced.



The barrel has 9 sides, this maximises the working volume of the barrel, vastly improving product part movement, more active plating solution within the barrel, up to 30%, work breaker bars to mix and separate the parts.



- Increased exposure of parts, reducing process time
- Greater volume of active solution within the barrel
- Circulation of solution and parts giving a more even coating
- Better distribution of plating over the pieces
- Put the pieces closer to the anodes



Eagle Danglers

150mm Ultraflex Barrel Dangler Specification

Application

Highly flexible plating barrel cathode (Dangler) for use with Eagle plating barrels.

Function

To make good electrical contact of coins within the plating barrel by means of flexible copper contact cable, within a Polyurethane insulated protective sheathing with a detachable brass screwed contact tip. The dangler requirement is as follows:

- High flexibility:
- Current load: For non-insulated plain copper rope, 480 Amperes, **manufacture advises to reduce the current capacity by 20% if insulated with Polyurethane.**
- Conductor: 19152 x 0.10 O/D 19mm
- Annealed Cu-ETP1 wires acc. To DIN EN 13602
- Correct length of dangler within the barrel
- Detachable brass contact tip with correct diameter and length of good contact with the barrel load
- Polyurethane outer protective sheathing.

Polyurethane raw material details (PU)

- 100% ether polyurethane
- Suitable for food use (Clear)
- Shore A 90
- Silicone, cadmium and plasticiser free
- Hydrolysis resistant

Technical Information

- Temperatures: -30°C to +70°C. Occasional use up to 100°C. Brittle point: –70°C. *
- Chemical, corrosion and abrasion resistance
- Excellent resistance to petroleum based products
- Good resistance to UV
- Highly elastic
- Lightweight
- Very flexible, even at low temperatures
- Good bend radii
- Wide range of operating temperatures
- Excellent pressure carrying capabilities
- No plasticisers

The raw material used is composed of ingredients which meet the current requirements of the FDA for food contact applications when used in accordance with the requirements and limitations of 21 CFR: 175.105; 177.1680 for repeat use applications only; 177.2600.

Remark:

All information about current-load are approximate values in consideration of the cables heat for single laying of air cooled cables and ambient temperature +35° C and a conductor heat of circa +70° C. The temperature of the conductor is dependent on the ambient temperature, the installation, the cooling etc. so that our information is only approximate values under optimized conditions.

* For use as a guide only

185mm Ultraflex Barrel Dangler Specification

Application

Highly flexible plating barrel cathode (Dangler) for use with Eagle plating barrels.

Function

To make good electrical contact of coins within the plating barrel by means of flexible copper contact cable, within a Polyurethane insulated protective sheathing and a detachable brass screwed contact tip. The dangler requirement is as follows:

- High flexibility:
- Current load: For non-insulated plain copper rope, 570 Amperes, **manufacture advises to reduce the current capacity by 20% when insulated with Polyurethane.**
- Conductor: 23,580 x 0.10 O/D Ø21.
- Annealed Cu-ETP1 wires acc. To DIN EN 13602
- Correct length of dangler within the barrel.
- Detachable brass contact tip with correct diameter and length for positive contact with the barrel load.
- Polyurethane outer protective sheathing.

Polyurethane raw material details (PU)

- 100% ether polyurethane
- Suitable for food use (Clear)
- Shore A 90
- Silicone, cadmium and plasticiser free
- Hydrolysis resistant

Technical Information

- Temperatures: -30°C to +70°C. Occasional use up to 100°C. Brittle point: –70°C. *
- Chemical, corrosion and abrasion resistance
- Excellent resistance to petroleum based products
- Good resistance to UV
- Highly elastic
- Lightweight
- Very flexible, even at low temperatures
- Good bend radii
- Wide range of operating temperatures
- Excellent pressure carrying capabilities
- No plasticisers

The raw material used is composed of ingredients which meet the current requirements of the FDA for food contact applications when used in accordance with the requirements and limitations of 21 CFR: 175.105; 177.1680 for repeat use applications only; 177.2600.

Remark:

All information about current-load are approximate values in consideration of the cables heat for single laying of air cooled cables and ambient temperature +35° C and a conductor heat of circa +70° C. The temperature of the conductor is dependent on the ambient temperature, the installation, the cooling etc. so that our information is only approximate values under optimized conditions.

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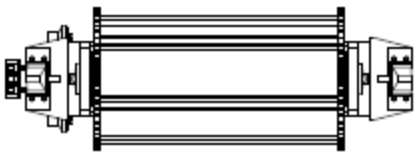
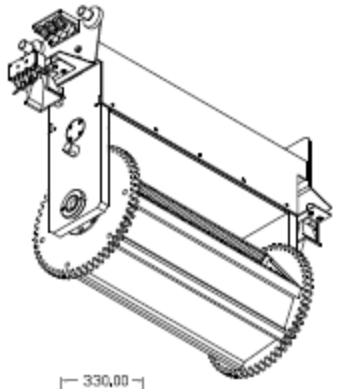
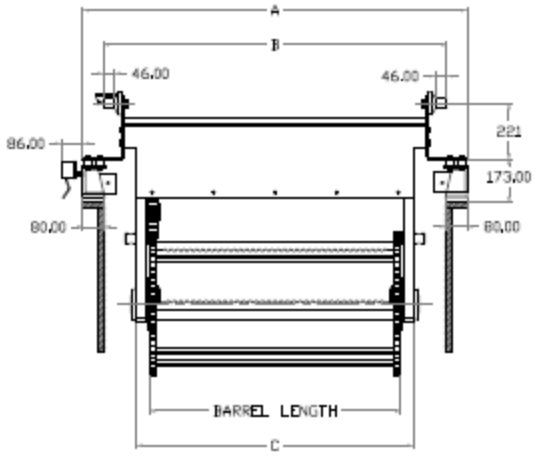
Eagle Bell and Wedge Range

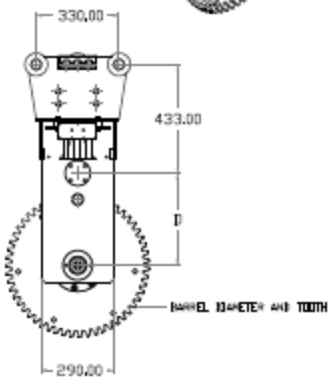
www.platingbarrels.com

MODEL KEY WIDTH	MOD	BARREL LENGTH	A	B	C	D	E BARREL DIAMETER	F VOLUME (LITRES)
300-6 SIDES	A	600	1130	968	700	315	470	44
	B	800	1330	1168	900			58
	C	1000	1530	1368	1100			73
350-6 SIDES	D	600	1130	968	700	330	500	58
	E	800	1330	1168	900			77
	F	1000	1530	1368	1100			98
400-6 SIDES	G	800	1330	1168	900	355	550	98
	H	1000	1530	1368	1100			124
	I	1200	1730	1568	1300			150
420-6 SIDES	J	1000	1530	1368	1100	370	580	140
	K	1200	1730	1568	1300			170
	L	1400	1930	1768	1500			200
450-6 SIDES	M	1000	1530	1368	1100	405	650	164
	N	1200	1730	1568	1300			198
	O	1400	1930	1768	1500			233
430-7 SIDES	P	1000	1530	1368	1100	370	580	146
	Q	1200	1730	1568	1300			177
	R	1400	1930	1768	1500			208
490-7 SIDES	S	1000	1530	1368	1100	400	640	188
	T	1200	1730	1568	1300			228
	U	1400	1930	1768	1500			268









EAGLE ENGINEERING (TELFORD) LTD

EAGLE-BW-RANGE

BW BARREL RANGE

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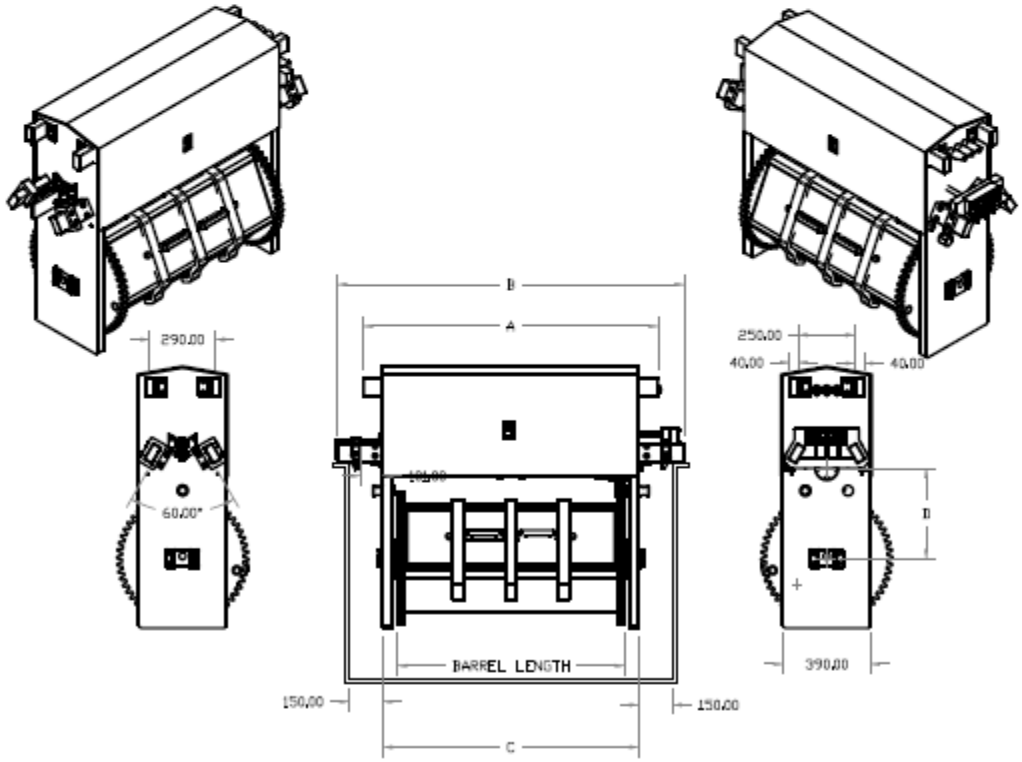
Standard Barrel Sizes

www.platingbarrels.com

MODEL KEY WIDTH	BARREL LENGTH	A	B	C	D	E BARREL DIAMETER	F VOLUME (LITRES)	REFERENCE CODE
300-6	600	900	1130	730			42	EE-40-100
32T x 8M	800	1100	1330	930	244	432	56	EE-40-150
	1000	1300	1530	1130			70	EE-40-200
320-6	600	900	1130	730			48	EE-40-250
35T x 8M	800	1100	1330	930	256	456	60	EE-40-300
	1000	1300	1530	1130			750	EE-40-350
360-6	800	1100	1330	930			83	EE-40-400
48T x 10M	1000	1300	1530	1130	355	500	105	EE-40-450
	1200	1500	1730	1330			127	EE-40-500
400-6	800	1100	1330	930			102	EE-40-550
55T x 10M	1000	1300	1530	1130	390	570	129	EE-40-600
	1200	1500	1730	1330			157	EE-40-400
420-6	1000	1300	1530	1130			142	EE-40-650
56T x 10M	1200	1500	1730	1330	395	580	172	EE-40-700
	1400	1700	1930	1530			202	EE-40-750
450-6	1000	1300	1530	1130			164	EE-40-800
60T x 10M	1200	1500	1730	1330	415	620	198	EE-40-850
	1400	1700	1930	1530			233	EE-40-900
430-7	1000	1300	1530	1130			155	EE-40-950
56T x 10M	1200	1500	1730	1330	395	580	186	EE-40-1000
	1400	1700	1930	1530			217	EE-40-1050
490-7	1000	1300	1530	1130			197	EE-40-1100
62T x 10M	1200	1500	1730	1330	425	640	236	EE-40-1150
	1400	1700	1930	1530			276	EE-40-1200



EAGLE ENGINEERING (TELFORD) LTD

EAGLE-C-PREMIUM RANGE

Eagle Barrel Quality

Barrel damage and abrasion deterioration

The two digital images below are the inside views of separate barrels fitted to a double rack system at a major German company. Our UHMW EAGLE barrel (image 2) was installed alongside a competitors' (image 1) on exactly the same day and have been subject to precisely identical work conditions i.e. work type, load, volume, weight and temperature. The test results are clear to see.

Image one: Competitor barrel after 6 months
Barrel material is cold forming (creep)
Creep is the tendency of material to deform permanently under the influence of mechanical stress, this results from load, weight, stress and temperature. As can be seen the surface of the material is also breaking-up, the bore hole perforations are no longer circular and will reduce in size and eventually close. The effectiveness of the barrel drops substantially, losing solution transfer efficiency and chemistry carry-over increasing.

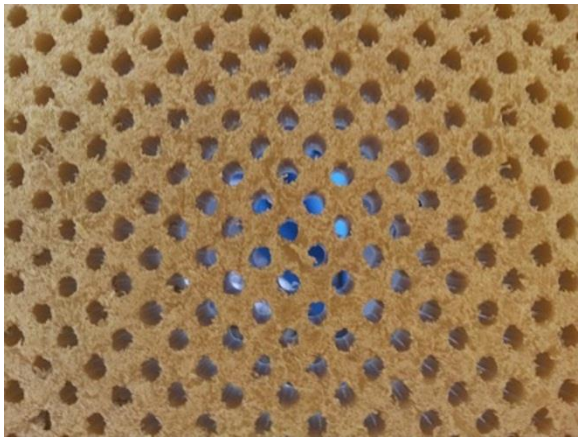
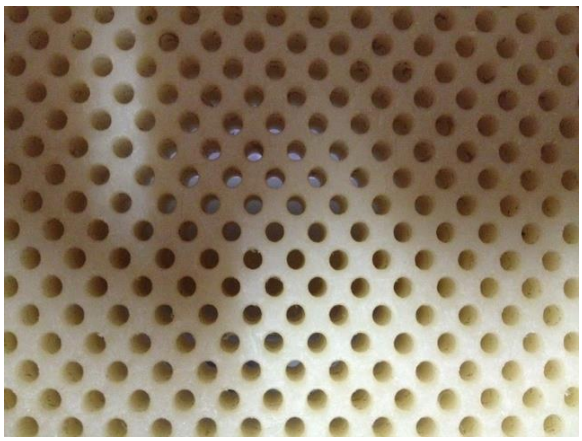
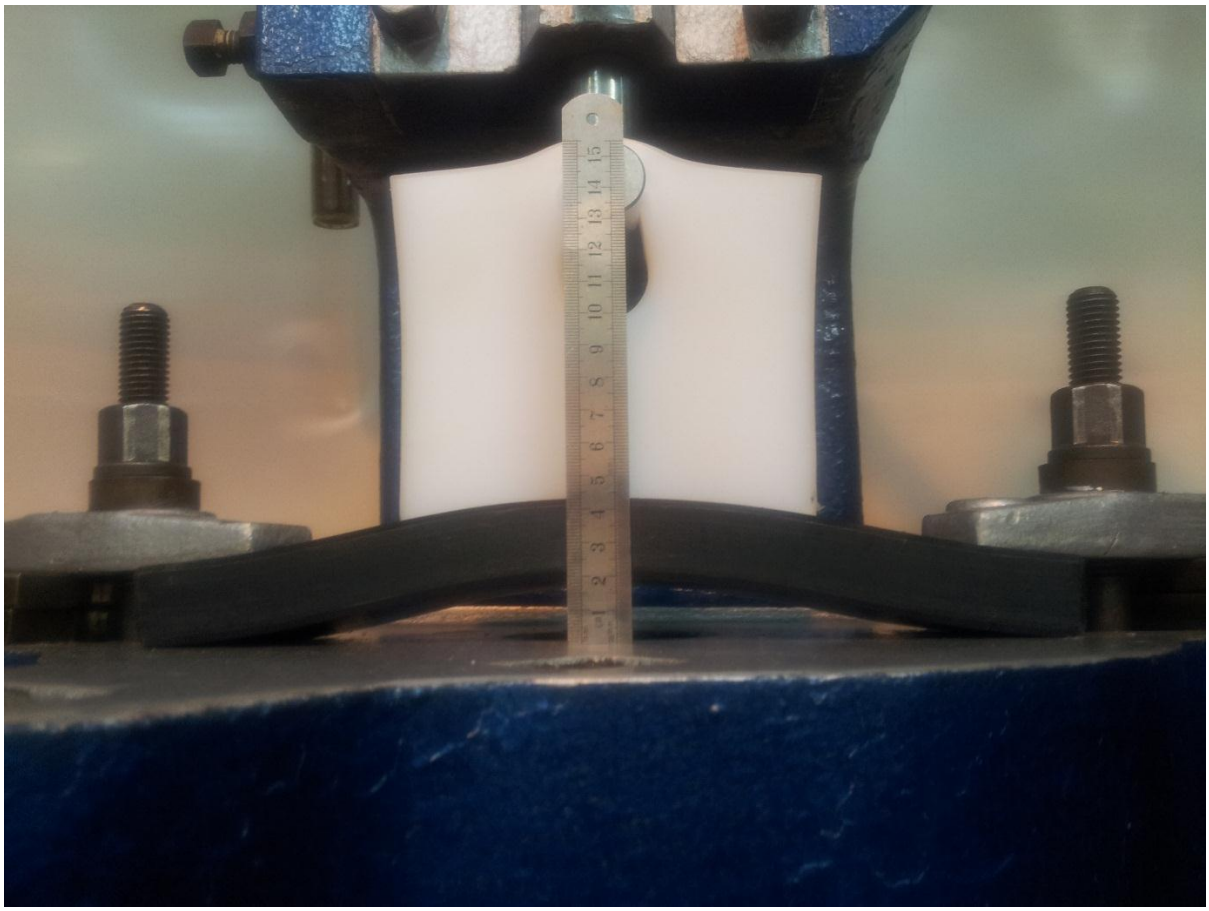


Image two: Eagle premium grade Ultra High Molecular Weight Polyethylene (U.H.M.W PE1000) barrel after 6 months
Bore hole perforations are still perfect without damage or deterioration.
We have barrels in operation at a client's facility electro-plating various types of fasteners, after 14 years of service on a 24 hour x 6 day a week cycle time carrying 150Kg per load, these barrels are still working strong. Remarkably each individual barrel has now plated an unbelievable 10,000 metric tonnes.



Construction test of Eagle Plating barrel



The above picture demonstrates the incredible strength of our “Double Lock” system. The black and white UHMW PE1000 materials have been fixed to one another with the “Double Lock” joint. As demonstrated, the black base has been clamped to a Fly Press machine and the white section is secured to a Ø25mm steel peg fixed into the ram of the press. The ram and peg are then pulled away from base in an attempt to break the joint, because of the incredible tensile strength of the UHMW PE1000 the material stretches without the joint giving and parting. This “Double Lock” is how we construct our barrels making them virtually un-breakable under normal working conditions.

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